

National Digital Forecast Database (NDFD)

Gridded Data

Product Description Document

1/31/05

Part I - Mission Connection

Product/Service Description - Under statute, the National Weather Service (NWS) is charged to collect data on climate, water, and weather, provide forecasts and warnings of severe weather in order to protect life and property, and create and disseminate forecasts and other weather information for the benefit of a wide range of weather sensitive businesses and activities.

By capitalizing on rapid advances in science and technology and infusing these advances into its operations, the NWS has taken steps to proactively respond to ever changing and growing demands of its customers and partners. The 2003 Fair Weather report, produced by the National Research Council, recommended making NWS data and products available in an Internet accessible digital form. The specific recommendation is as follows: *“Information held in digital databases should be based on widely recognized standards, formats, and metadata descriptions to ensure that data from different observing platforms, databases, and models can be integrated and used by all interested parties in the weather and climate enterprise.”* The Internet is now a principal means of communicating NWS forecasts.

The NWS provides access to official and experimental gridded forecasts of sensible weather elements (e.g., Maximum Temperature, Sky Cover) through the National Digital Forecast Database (NDFD). NDFD contains a seamless mosaic of digital forecasts from NWS field offices working in collaboration with the National Centers for Environmental Prediction (NCEP).

Experimental gridded weather forecast elements available in NDFD for the coterminous United States (CONUS) and Puerto Rico include the following:

- Surface Temperature
- Dew Point
- Weather
- Sky Cover
- Quantitative Precipitation Forecasts (QPF)
- Snow Amount
- Wave Height
- Wind Direction
- Wind Speed

Experimental gridded weather forecast elements available in NDFD for Hawaii and Guam include the following:

- Maximum Temperature
- Minimum Temperature
- Probability of Precipitation /PoP12/
- Surface Temperature
- Dew Point
- Weather
- Sky Cover
- Quantitative Precipitation Forecasts (QPF)
- Snow Amount
- Wave Height
- Wind Direction
- Wind Speed

Purpose/Intended Use – NDFD is a central database storing geospatially referenced (GIS compatible) digital forecast information. The NDFD houses both official and experimental (as defined in [*NWSI 10-102, New or Enhanced Products and Services*](#)) grid fields. The NDFD is the primary means by which grids will be made available to customers and partners.

Audience – The current audience for NDFD gridded data is large volume users of forecast information, utilities, emergency managers, businesses/industry, academia, and any others who wish to decode and explore various potential applications of the NWS digital data.

Presentation Format - The NDFD is available for 16 predefined and slightly overlapping geographic sectors throughout the CONUS, as depicted at the following URL: <http://www.weather.gov/ndfd/coverage.htm>. Three OCONUS sectors are also available for Hawaii, Guam, and Puerto Rico/Virgin Islands. The data is presented in GRIB, Edition 2 format and can be readily decoded for those that wish to create derived products from the forecast parameters/values contained within the NDFD. A user defined GRIB2 access is also available. This service allows the user to provide latitude/longitude points for two corners and a weather element. A resulting GRIB2 message is built “on-the-fly” and downloaded by the user. For more information about User Defined GRIB2 access, please refer to the Products/Service Description Document at the following URL:

http://products.weather.gov/PDD/User_Defined_Grib2.pdf

In addition, NDFD data is available in Extensible Markup Language (XML). XML is a service that provides the ability to request NDFD data over the internet and receive the information back in an XML format. The request/response process is made possible by the NDFD XML Simple Object Access Protocol (SOAP) server. For additional details regarding XML, please refer to the NDFD XML Service Description Document at the following URL:

http://products.weather.gov/PDD/Extensible_Markup_Language.pdf

Feedback Method - User feedback is extremely important in our effort to improve the quality and usefulness of products and services. Please submit your comments on these experimental grids by completing our brief [experimental product survey](#). Comments may also be submitted by clicking on the “Feedback/Survey” link on the NDFD web pages at the following URL:

<http://www.weather.gov/ndfd>.

For general questions regarding the National Digital Forecast Database, please email:
nws.ndfd@noaa.gov

Technical questions regarding the NDFD may be addressed to:
National Weather Service Headquarters
ATTN: David Ruth, W/OST21
1325 E-W Highway, SSMC2
Silver Spring, MD 20910

Part II - Technical Description

Format and Science Basis - The NDFD forecast element definitions and technical information (e.g., temporal and spatial resolutions of the graphics, and geographic coverage) may be found on the NDFD technical page at the following URL:

<http://www.nws.noaa.gov/ndfd/technical.htm>

Product Availability - Updates to the NDFD will be made available shortly after the top of each hour. Forecast grids for the next Day 7 will be introduced daily around 1800 UTC.

Additional Information -

- (1) National Weather Service Instruction (NWSI) 10-506, Digital Data Products/Services Specification provides detailed information on both experimental and official elements in NDFD.
- (2) Experimental grids are evaluated regularly on timeliness, completeness, spatial consistency, accuracy, and other subjective criteria. When they meet the guidelines established by the NWS, they are declared “official” and are no longer covered by this PDD for experimental grid elements.
- (3) Experimental grids for Temperature, Dew Point, and Weather are scheduled to become official elements on March 15, 2005.